REMARKS

The Applicant has now had an opportunity to carefully consider the comments set forth in the Office Action mailed January 29, 2007. The acknowledgement of allowable subject matter in **claim 8** and the help of the Examiner in identifying a typographical error made in the amendment of **claim 28** are noted with appreciation. Nevertheless, all of the claim rejections are respectfully traversed. Amendment, reexamination and reconsideration of the application in view of the following remarks are respectfully requested.

The Office Action

In the Office Action mailed January 29, 2007:

claim 8 was indicated to include allowable subject matter;

claim 21 was objected to for having an amendment changing a word from "delimiter" to "deliminer'"; however, **claim 21** was not amended in this manner, **claim 28** was amended as described by the objection, accordingly, it is assumed that this objection to **claim 21** was meant to be directed toward **claim 28**;

claims 2, 4, 5, 7, 10-13, 18 and **20-28** were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,963,205 to Sotomayor ("Sotomayor") in view of U.S. Patent No. 5,666,490 to Gillings, et al. ("Gillings");

claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over Sotomayor in view of Gilings and further in view of U.S. Patent No. 5,276,616 to Kuga, et al. ("Kuga");

claims 15 and **16** were rejected under 35 U.S.C. §103(a) as being unpatentable over Sotomayor in view of Gillings and further in view of U.S. Patent No. 4,903,229 to Schmidt, et al. ("Schmidt"); and

claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over a combination of four references including Sotomayor, Gillings, Schmidt and U.S. Patent No. 6,064,397 to Herregods, et al. ("Herregods").

The Present Application

By way of brief review, the present application is directed to systems and methods for automatic and semi-automatic document indexing. For instance, the invention is useful where a large document is scanned to generate an electronic version of the document. For example, the invention is used to generate a table of contents or an index for the electronic version of the document (for example, see FIG. 1). A custom sub-section delimiter definition that is related to the document currently being processed can be generated. The delimiter definition includes a list of one or more characteristics of a delimiter (page 5, lines 13-30).

For example, a review of the document may indicate that chapter headings in the document are rendered in an 18-point font size at a location that is centered horizontally on a page and is two inches below the top of the page. In that case, a first sub-section delimiter may be defined as any text located two inches from the top of a page and rendered in an 18-point font size.

Subheadings in the exemplary document might occur anywhere on a page but are rendered in a 16-point font size with underlined characters. Therefore, a second sub-section delimiter for the document might be defined as underlined 16-point text.

Once one or more sub-section delimiters are defined, the electronic version of the document is searched to find occurrences of text corresponding to the defined sub-section delimiters. Information regarding each occurrence is used to create an index or table of contents for the document. For example, for each occurrence of 18-point text located two inches from the top of a page, the text string associated with the occurrence is recorded in association with a text location of the occurrence. For example, the text "CHAPTER ONE" was found rendered in 18-point font two inches from a top edge of page 3 of the document. Therefore, the text "CHAPTER ONE" is associated with a page number, such as page 3, and is recorded and included in the index or table of contents. The text location information may be recorded in the form of a hypertext link. Similarly, the text and text location associated with each occurrence of underlined 16-point text is recorded and added to the index or table of contents. For example, the text location recorded may include a page number as well as an indication of a location within the page. Again, the text location information may be recorded in the form of a hyperlink.

The Cited References

In stark contrast, the newly cited and primary reference of the Office Action to Sotomayor allegedly discusses automatic index creation for a **word processor**. Sotomayor allegedly discloses a system and method that automatically identifies key topics and phrases in a document text and inserts identifying tokens for the index generation program in the word processor to generate an index to those key topics (column 2, lines 41-45). Allegedly, one embodiment of the invention of Sotomayor includes a process running in a word processor program on a computer which (a) allows an author to select index generation for a document being processed (edited) and then, using a **semantic analyzer program** running on a computer, (b) automatically identifies significant key topics within the document, (c) generates and embeds index tokens into the text of the document (column 2, lines 54-61). Even if the tokens of Sotomayor are fairly construed as predetermined machine-readable symbols, as the phrase is used in the present application (which is disputed), it is respectfully submitted that Sotomayor does not disclose or suggest determining a subsection delimiter comprises a user indicating a predetermined machine-readable symbol or a user placing a predetermined machine-readable symbol representing a demarcation point on a printed version of the document.

It is respectfully submitted that the secondary references do not cure the deficiencies of Sotomayor.

For example, Gillings allegedly discusses an electronic document management system that converts documents into electronic images which can be sequentially routed to individual users in a network system. The network system includes at least two work nodes for processing the documents where one of the nodes is **a data entry work node**. The documents are subdivided into two or more subdivisions which are classified by subdivision type. The images are routed through the network system according to predefined routing schemes based on its subdivision type. The routing scheme for the documents includes at least one data entry node where data contained in the document is entered into a database. As the data is entered into the database, it is dynamically linked with its corresponding image which is also stored in the network (Abstract). Gillings includes the word --indexing-- and describes a document indexing process (e.g., column 10, line 20 - column 11, line 29). However, the indexing process

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of Gillings involves the manual keying of information by a worker at a data entry node. Indeed, the document indexing process of Gillings preferably includes two different workers for determining and keying in indexing information as well as supervisory, editing and exception handling personnel. Accordingly, Gillings is unrelated to an automatic index generation for scanned documents such as that described in the present application or the automatic index creation for a word processor or Sotomayer. Accordingly, there is no motivation for combining the manual index generation of Gillings with the alleged automatic index creation of Sotomayer. Furthermore, such a combination would not arrive at that automatic index generation for a scanned document disclosed and claimed in the present application. Gillings does not cure the deficiencies of Sotomayer with regard to solving problems related to automatically generating an index for a scanned document since the index generated by Gillings is created manually, preferably by two different people and sometimes requiring three or four different individuals to provide input for creating the index.

For example, to ensure the accuracy of the index information, double entry keying of document index information can be used. The documents are first indexed through a batch index process and then routed to an index validation queue where the index information is validated. To initiate indexing, a batch is selected using the scan batch dialog box in FIG. 4. After a batch is selected by the indexer, an index process screen similar to the one shown in FIG. 6 is displayed. The index process screen displays specific index fields defined during a setup for the corresponding protocol. The protocol and received data fields are automatically filled in based on data **entered by the scan operator at scan time**. All pages in the selected batch are made available to the indexer and the first page of the batch is displayed in the document window 24. The indexer enters index values in each of the index fields defined during protocol setup (column 10, lines 35-51).

After selecting, entering and confirming index values for the current image, **the operator** may then save the index fields. If no duplicate index information is detected, the system will record the index information and display the next image in the batch. If duplicate information is detected, duplicate page processing will occur.

Where index information is double keyed, each page is routed to an index validation queue after batch indexing. When **the second index operator selects**

pages from the index validation queue for processing, an index screen similar to the one shown in FIG. 6 appears. **The second index operator re-enters index information** for the same pages. As the second indexer completes the entry of the index information, the system compares the second entry with the first entry. If any discrepancy exists, the problem must be resolved before the item can continue in the work flow (column 11, lines 18-28).

Accordingly, since the indexing method for a scanned document of Gillings is a manual operation requiring that a first and possibly second index operator must determine and manually key in index information in a manner similar to that described, for example, in the description of related art provided, for example, on page 1, lines 26-30, of the present application, and does not disclose or suggest a method for automatically generating an index or table of contents for a scanned document, Gillings does not remedy the deficiencies of Sotomayer. Furthermore, it is respectfully submitted that any motivation for combining subject matter from Gillings with subject matter from Sotomayer could only be based on information gleaned from the present application. Accordingly, the combination of Sotomayer and Gillings is based on impermissible hindsight.

Kuga, Schmidt and Herregods have been addressed in previous papers submitted by the Applicant including, for example, Applicant's Amendment D, which was mailed by the Applicant on August 6, 2004.

The Claims are Formal

While it refers to **claim 21**, it appears that the Office Action was meant to object to **claim 28** for having been amended to replace --delimiter;-- (including a semicolon) with --deliminer,-- (including a comma). The amendment was meant to simply replace the semicolon with the comma. Accordingly, **claim 28** is now being amended to replace --deliminer-- with --delimiter--.

For the foregoing reasons, **claim 28** is formal and withdrawal of the objection to **claim 21** (and/or **28**) is respectfully requested.

The Claims are not Obvious

Claims 2, **4**, **5**, **7**, **10-13**, **18** and **20-28** were rejected under 35 U.S.C. §103(a) as being unpatentable over Sotomayor in view of Gillings.

In explaining these rejections, the Office Action makes certain assertions about what Sotomayer and Gillings disclose. However, the Office Action does not link any of these assertions to elements of the claims.

For example, **claim 2** recites *inter alia*: determining a subsection delimiter definition including at least one delimiter characteristic, wherein determining a subsection delimiter comprises a user indicating at least one of a <u>font size</u>, <u>a font style</u>, <u>a text string</u>, <u>a text location description</u>, and <u>a specific point coordinate</u> within the document or wherein determining a subsection delimiter comprises <u>a user placing a predetermined machine-readable symbol representing a demarcation point on a printed version of the document</u> as the subsection delimiter.

In this regard, it is noted that the Office Action does not even assert that Sotomayer and/or Gillings discloses determining a subsection delimiter wherein determining the subsection delimiter comprises <u>a user indicating a font size</u>.

The Office Action does not even assert that Sotomayer and/or Gillings discloses determining a subsection delimiter wherein determining the subsection delimiter comprises <u>a user indicating a font style</u>.

The Office Action does not even assert that Sotomayer and/or Gillings discloses determining a subsection delimiter wherein determining the subsection delimiter comprises <u>a user indicating a text string</u>.

The Office Action does not even assert that Sotomayer and/or Gillings discloses determining a subsection delimiter wherein determining the subsection delimiter comprises <u>a user indicating a text location description</u>.

The Office Action does not even assert that Sotomayer and/or Gillings discloses determining a subsection delimiter wherein determining the subsection delimiter comprises <u>a user indicating a specific point coordinate within the document</u>.

The Office Action does not even assert that Sotomayer and/or Gillings discloses determining a subsection delimiter wherein determining the subsection delimiter comprises <u>a user placing a predetermined machine-readable symbol representing a demarcation point on **a printed version** of the document as the subsection delimiter</u>.

For at least the foregoing reasons, the Office has not met its burden presenting a *prima facie* case of obviousness, and **claim 2**, as well as **claims 4-6**, which depend therefrom, is not anticipated and is not obvious in light of Sotomayer and Gillings.

Further in regard to the assertions of the Office Action with regard to the disclosure of Sotomayer, it is noted that the Office Action asserts that six different tokens allegedly disclosed by Sotomayer as bracketing heading information are considered by the Office as subsection delimiters and are predetermined machine-readable symbols. However, it is noted that independent **claims 2, 7, 10, 18, 20, 22, 23** and **28** do not refer to predetermined machine-readable symbols, except that **claims 20** and **22** refer to predetermined machine-readable symbols which are placed on a printed or paper version of a document. In this regard, it is respectfully submitted that even if the six tokens referred to in the Office Action were fairly construed to be predetermined machine-readable symbols as the term is used in the present application, it is respectfully submitted that Sotomayer, even in view of Gillings, does not disclose or suggest a user placing such tokens on printed or paper versions of a document.

For at least the foregoing additional reasons, independent **claims 2, 7, 10, 18, 20, 22, 23** and **28**, as well as **claims 4-6** and **21**, which depend from **claim 2; claim 8**, which depends from **claim 7; claims 11-13, 15-17** and **26-27**, which depend from **claim 10; claim 24**, which depends from **claim 22**; and **claim 25**, which depends from **claim 23**, are not anticipated and are not obvious in light of Sotomayer and Gillings.

Claim 7 recites *inter alia*: determining a subsection delimiter definition including at least one delimiter characteristic, wherein determining a subsection delimiter definition comprises selecting an exemplary subsection title, performing one of document recognition and optical character recognition on the selected exemplary subsection title to determine at least one recognized property, and using the at least one recognized property of the exemplary subsection title as a subsection delimiter definition.

The Office Action stipulates that Sotomayer fails to teach scanning a document to generate scanned document data and performing recognition functions on the scanned document data to generate a recognized version of the document. Furthermore, it is respectfully submitted that Gillings does not disclose or suggest

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performing recognition functions on a scanned document data to generate a recognized version of the document. Moreover, Sotomayer and Gillings do not disclose or suggest selecting an exemplary subsection title, performing document recognition or optical character recognition on the selected exemplary subsection title to determine at least one recognized property, and using the at least one recognized property of the exemplary subsection title as a subsection delimiter definition. Further in this regard, it is noted that the Office Action does not assert that Sotomayer or Gillings disclose or suggest at least this aspect of **claim 7**.

Accordingly, the Office Action has not met its burder of presenting a *prima facie* case of obviousness and **claim 7**, as well as **claim 8**, which depends therefrom is not anticipated and is not obvious in light of Sotomayer and Gillings.

Furthermore, it is respectfully submitted that Gillings does not disclose or suggest performing document recognition or optical character recognition on scanned documents. Instead, it is respectfully submitted that the scanned documents of Gillings are displayed (FIG. 3, document window 24) for review by various people, including, for example, first and second index operators (e.g., column 11, lines 20-21), an edit operator (column 11, line 57), a data entry A and data entry B operator (column 12, lines 35-40) and a comment entry operator (column 13, lines 36-37).

For at least the foregoing additional reasons, **claim 7**, as well as **claim 8**, which depends therefrom, is not anticipated and is not obvious in light of Sotomayer and Gillings.

The recognition of the Office Action that **claim 8** includes allowable subject matter is noted with appreciation.

Claim 10 recites a document processor operative to automatically generate an index for a document from a occurrences corresponding to a delimiter definition, the document processor comprising *inter alia*: a delimiter designator module operative to communicate with the document processor operator through the user interface in order to generate at least one delimiter designation for the delimiter definition, a delimiter searcher operative to search for and record text and text location information regarding the occurrences corresponding to the delimiter definition within the electronic version of the document and a document divider operative to divide the document into subsections based on the recorded information regarding the occurrences

corresponding to the delimiter definition.

The Office Action asserts that the tokens of Sotomayer are considered as subsection delimiters. However, the tokens of Sotomayer allows an author to specify up to six levels of heading information bracketed by six different hitting token pairs. Applications on different computers then process the HTML documents <u>for visual presentation</u> in a manner customized for particular display devices. An application on one computer could display a level 1 heading as a 14-point bold Bodini, while an application on another computer could display it as a 20-point italic Roman (column 6, lines 7-15). It is respectfully submitted that the author inserts these tokens as part of the document at document creation time. <u>It is noted that the Office Action does not assert that a user may then designate which, if any, of the heading tokens are to be used in generating an index or table of contents</u>. Instead, it is respectfully submitted that the cited portion of column 10 (lines 2-6) is part of an explanation that a table of contents summary page comprises a table of contents (generated from the heading tokens inserted in the source document by its author) automatically derived by a summary page generator. However, it is respectfully submitted that <u>disclosure that the summary page generator uses the tokens to generate the summary does not disclose or suggest that a user designated the tokens **for use in generating the summary**</u>.

Accordingly, the Office Action has not met its burden for identifying disclosure in the cited references of a delimiter designator module operative to communicate with the document processor operator through the user interface in order to generate at least one delimiter designation for the delimiter definition. The cited portions indicate that an author includes tokens to allow a document to be customized for display on particular devices (column 6, lines 7-15) and that a summary generator takes advantage of these tokens to generate a table of contents summary page. However, <u>the cited portions do not disclose or suggest that a document processor operator designates the tokens **for use as delimiter definitions**</u>.

Additionally, the Office Action stipulates that Sotomayer fails to disclose a document divider operative to divide the document into subsections and relies on Gillings for this disclosure. However, while the documents of Gillings are allegedly subdivided into two or more subdivisions which are classified by subdivision type (Abstract), it is respectfully submitted that Gillings does not disclose or suggest that

such divisions are the result of a document divider that is operative to divide the document into subsections <u>based on recorded information regarding occurrences corresponding to a delimiter definition wherein the recorded information is provided by a delimiter searcher that is operative to search for and record text and text location information regarding occurrences corresponding to a delimiter definition as recited in claim 10</u>. Instead, it is respectfully submitted that <u>the documents of Gillings are divided into subdivisions according to a manual indexing process</u> wherein one and sometimes two index operators view an image of a document (document window 24 of FIG. 3) and key in information into predesignated fields (column 10, line 21 - column 11, line 28) for every page in the document.

For at least the foregoing additional reasons, **claim 10**, as well as **claims 11-13**, **15-17**, **26** and **27**, are not anticipated and are not obvious in light of Sotomayer and Gillings.

Claim 18 recites *inter alia*: performing recognition functions on the scanned document data to generate a recognized version of the document. The Office Action stipulates that Sotomayer fails to disclose performing recognition functions on scanned document data to generate a recognized version of the document and appears to rely on Gillings for this disclosure. However, the Office Action does not assert that Gillings discloses or suggests performing recognition functions on the scanned document data to generate a recognized version of the document.

For at least the foregoing reasons, the Office has not met its burden of presenting a *prima facie* case of obviousness, and **claim 18** is not obvious in light of Sotomayer and Gillings.

Moreover, it is respectfully submitted that Gillings does not remedy the deficiency of Sotomayer. Gillings does not disclose or suggest performing recognition functions on scanned image data.

Additionally, **claim 18** recites *inter alia*: defining a subsection delimiter, wherein defining the subsection delimiter includes at least one of a document processor operator building a subsection delimiter definition from a list of predetermined potential subsection delimiter components, a document processor operator entering a subsection delimiter through keyboard keystrokes, entering a subsection delimiter by selecting symbols on a display portion of an electronic version of the document, and

designating at least one demarcation point on at least on display portion of the electronic document to create a list of demarcation points to be used as a set of delimiter definitions.

It is respectfully submitted that the Office Action does not even assert that Sotomayer and Gillings disclose or suggest any of these listed methods for defining a subsection delimiter. The inclusion of tokens described by Sotomayer is part of a document authoring process and does not disclose or suggest a document processor operator indicating that the tokens should be used as subsection delimiters.

For at least the foregoing additional reasons, the Office has not met its burden of presenting a *prima facie* case of obviousness, and **claim 18** is not anticipated and is not obvious in view of Sotomayer and Gillings.

Claim 20 recites *inter alia*: performing recognition functions on the scanned document data to generate a recognized version of the document, defining a subsection delimiter, wherein defining the subsection delimiter comprises marking a paper version of the document of at least one predetermined machine-readable demarcation symbol prior to scanning the document and searching the recognized version for occurrences of items that correspond to the defined subsection delimiter.

The Office Action does not even assert that Sotomayer and/or Gillings disclose performing recognition functions on scanned document data. Additionally, the Office Action does not even assert that Sotomayer and Gillings disclose or suggest defining a subsection delimiter, wherein defining the subsection delimiter comprises marking a paper version of the document with at least one predetermined machine-readable demarcation symbol prior to scanning the document. Accordingly, the Office Action does not assert that Sotomayer and Gillings disclose or suggest searching a recognized version to find occurrences of items that correspond to such a defined subsection delimiter.

For at least the foregoing reasons, the Office has not met its burden for presenting a *prima facie* case of obviousness, and **claim 20** is not anticipated and is not obvious in light of Sotomayer and Gillings.

Claim 21 depends from **claim 2** and is not anticipated and is not obvious for at least that reason.

Claim 22 recites determining a subsection delimiter definition including at least one delimiter characteristic, wherein determining the subsection delimiter comprises a user indicating at least one of a font size and a font style.

It is respectfully submitted that the Office Action does not even assert that Sotomayer and Gillings disclose or suggest determining a subsection delimiter comprises a user indicating at least one of a font size and a font style.

For at least the foregoing reasons, **claim 22**, as well as **claim 24**, which depends therefrom, is not anticipated and is not obvious in light of Sotomayer and Gillings.

Claim 23 recites *inter alia*: determining a subsection delimiter definition including at least one delimiter characteristic, wherein determining a subsection delimiter comprises a user indicating at least one of a font size, a font style and a specific point coordinate within the document.

It is respectfully submitted that the Office Action does not even assert that Sotomayer and Gillings disclose or suggest determining a subsection delimiter comprises a user indicating at least one of a font size, a font style and a specific point coordinate within the document.

For at least the foregoing reasons, the Office Action has not met its burden of presenting a *prima facie* case of obviousness, and **claim 23**, as well as **claim 25**, which depends therefrom, is not anticipated and is not obvious in light of Sotomayer and Gillings.

Claims 26 and **27** depend from **claim 10** and are not anticipated and are not obvious for at least that reason.

Additionally, **claim 27** recites: the delimiter designator is operative to accept an indication of at least one of a font size, a font style, a predetermined machine-readable symbol and a specific point coordinate within the document as a delimiter designation. **Claim 26** recites only the font size and font style as delimiter designations.

It is respectfully submitted that the Office Action does not even assert that Sotomayer and Gillings disclose or suggest a delimiter designator that is operative to accept as an indication of at least one of a font size, a font style and a specific point coordinate within a document as a delimiter designation. Additionally, even if the tokens of Sotomayer are fairly construed as predetermined machine-readable symbols,

Sotomayer and Gillings do not disclose or suggest a delimiter designator that is operative to accept an indication of a token as a delimiter designation. Accordingly, Sotomayer and Gillings do not disclose or suggest a delimiter designator that is operative to accept an indication of a predetermined machine-readable symbol as a delimiter designation.

For at least the foregoing reasons, the Office has not met its burden of presenting a *prima facie* case of obviousness and **claims 26** and **27** are not anticipated and are not obvious in view of Sotomayer and Gillings.

Claim 28 has been amended to correct a typographical error that occurred in the previous amendment and recites *inter alia*: performing recognition functions on scanned document data to generate a recognized version of the document and defining a subsection delimiter wherein defining the subsection delimiter comprises at least one of a user building a subsection delimiter from a list of predetermined potential subsection components, performing statistical analysis on recognized characters to select characteristics that are most likely to be associated with subsection delimiters, a user entering a subsection delimiter by selecting symbols on a display portion of the electronic version of the document and designating at least one demarcation point on at least one displayed portion of the electronic document to create a list of demarcation points to be used as a set of delimiter definitions.

It is respectfully submitted that the Office Action does not even assert that Sotomayer and/or Gillings disclose these elements of **claim 28**. Accordingly, it is respectfully submitted that the Office has not met its burden of presenting a *prima facie* case of obviousness with regard to **claim 28**, and **claim 28** is not anticipated and is not obvious in light of Sotomayer and Gillings.

Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over Sotomayor and Gillings in view of Kuga. However, **claim 6** depends from **claim 2** and is patentably distinct and not obvious for at least that reason.

Claims 15 and **16** were rejected under 35 U.S.C. §103(a) as being unpatentable over Sotomayor, Gillings and Schmidt. **Claim 17** was rejected under 35 U.S.C. §103(a) as being unpatentable over Sotomayor, Gillings, Schmidt and Herregods. However, **claim 15** depends from **claim 10**. **Claims 16** and **17** depend from **claim 15**. Therefore, **claims 15, 16** and **17** depend from **claim 10** and are not anticipated and are

not obvious in view of Sotomayor, Gillings, Schmidt and Herregods for at least that reason.

Telephone Interview

In the interests of advancing this application to issue the Applicant respectfully requests that the Examiner telephone the undersigned to discuss the foregoing or any suggestions that the Examiner may have to place the case in condition for allowance.

CONCLUSION

Claims 2, **4-8, 10-13, 15-18** and **20-28** remain in the application. **Claim 28** has been amended to correct a typographical error.

For at least the foregoing reasons, the application is in condition for allowance. Accordingly, an early indication thereof is respectfully requested.

Respectfully submitted,

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3/19/07

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